



Beaverdam Swamp Reservoir 2008

Beaverdam Swamp Reservoir is a 635-acre water supply reservoir for Gloucester County. It was constructed in 1989 and reached full pool level during the winter of 1989-1990. The reservoir and park provide a variety of opportunities for the outdoor enthusiast. There are trails for hiking, biking, and horse riding. You may see deer, turkey, bald eagles as well as a variety of waterfowl. The reservoir serves as an attractive place for anglers to try their luck. The reservoir has plenty of interesting contour and structure. Several creek arms, numerous large points, and an abundance of flooded timber all add to the extreme variability of topography and fish habitat. The use of outboard engines is prohibited on Beaverdam Swamp Reservoir. The use of trolling motors is permitted. There are two boat ramps on Beaverdam Swamp Reservoir. The main ramp is located at the park off Route 616 and the other ramp is off Route 606. The Route 606 ramp offers easier access to the northern areas of the reservoir, but has been specifically designated for annual launch pass holders. Boat and equipment rental, bait, and snacks can be obtained at the main entrance. There is also a fishing pier, picnic facilities, and play areas for children. The park is open 7 days a week and every day of the year except for Christmas and New Year's Day. The concession and main boat ramp can be reached by taking Route 616 from Route 17 (Business), just to the west of Gloucester. For further details, please call the concessionaire at (804) 693-2107.

The Virginia Department of Game and Inland Fisheries conducted an electrofishing survey of Beaverdam Swamp Reservoir on April 26, 2007. The reservoir was last sampled on April 24, 2006. Both of these electrofishing surveys consisted of covering six shoreline sections. Each shoreline area took 20 minutes to sample for a combined effort of two hours. The combination of these six sampling runs provides a picture of the present fish assemblage. The water temperatures varied slightly from 17.8 – 20.7°C during the course of the day. Electrofishing efforts consisted of shocking along the shoreline habitat as close as possible, with the majority of the effort concentrated in the 2 to 4 foot depth range. The sample collected 11 fish species. Predator species of largemouth bass, black crappies and chain pickerel were collected during each run. All other species were collected over the course of three runs. This report will concentrate primarily upon the four game fish species of largemouth bass, bluegill, black crappie and redear sunfish.

Table 1. Summary of primary game fish species collected from Beaverdam Swamp Reservoir on April 26, 2007.

Species	# Collected	Largest Length	Average Length
Largemouth Bass	219	20.8"	11.6"
Black Crappie	65	12.1"	7.3"
Bluegill	791	7.3"	3"
Redear Sunfish	98	11.1"	4.8"

The largemouth bass population within Beaverdam Swamp Reservoir appears to be reasonably balanced even though fewer juvenile bass were collected than in previous years. A total of 219 largemouth bass were collected. The CPUE (Catch Per Unit of Effort) for largemouth bass was 109.5 f/hr. This catch rate is very similar to the 2006 survey (N = 214, CPUE = 107 f/hr). The 2007 catch rate is the second highest rate of all Region 1, District 1 impoundments sampled in 2007. The size distribution of the collected bass can be seen on the enclosed length frequency graph. The overall size structure favors the presence of bass in the 12 to 16 inch range. This size range indicates a relatively balanced fishery with plenty of harvestable sized bass for anglers to catch. The 2007 sample revealed the 2006 year class to be not as strong as the previous two year classes of 2004 and 2005. The catch rate of young bass went from 46.5/hr in 2006 to 21.5/hr in 2007.

Figure 1. Length frequency distribution of largemouth bass collected from Beaverdam Swamp Reservoir on April 26, 2007. (N = 219, CPUE = 109.5 f/hr)

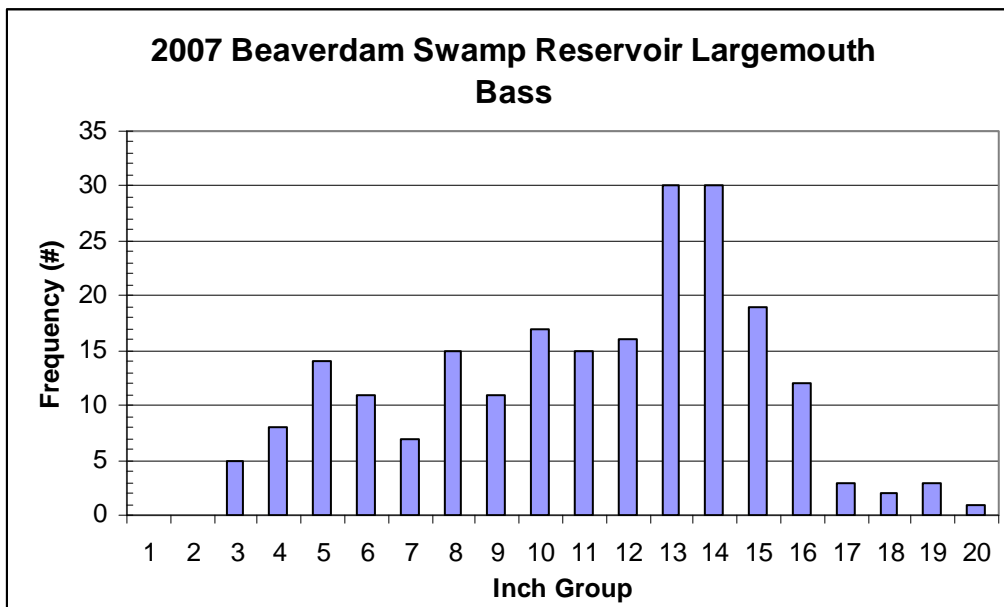
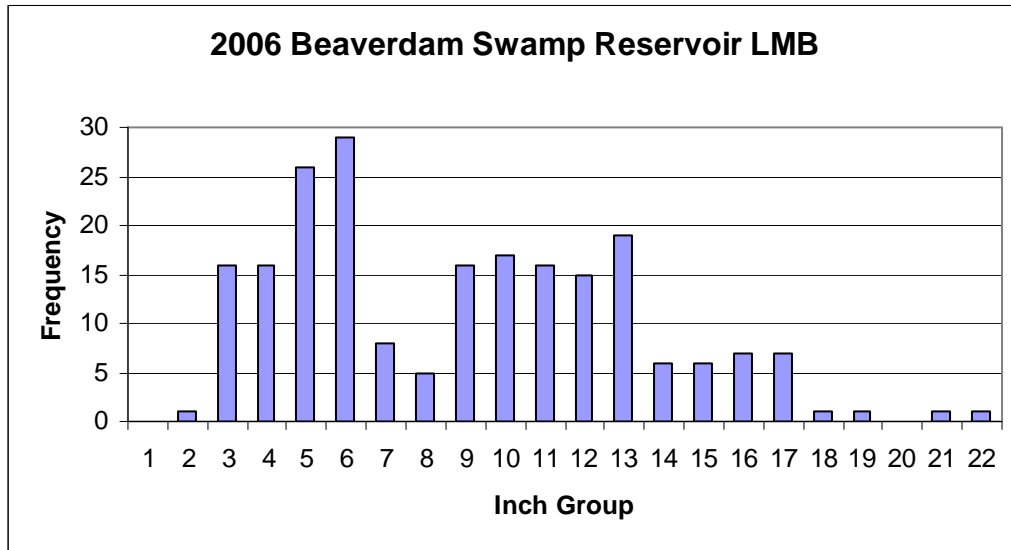


Figure 2. Length frequency distribution of largemouth bass collected from Beaverdam Swamp Reservoir on April 24, 2006. (N = 214, CPUE = 107 f/hr)



Fisheries biologists of the past established certain size classifications to describe the fish they collected. It is through these size classifications that population dynamics are analyzed. The size designations are stock, quality, preferred, memorable, and trophy. The PSD (Proportional Stock Density) is the proportion of stock-sized bass (8 inches or larger) that are also equal to or greater than 12 inches (quality size). A balanced bass/bluegill fishery has a bass PSD value within the 40 – 70 range. With largemouth bass being the most popular game fish in this country, it has been considered that a “preferred” bass is one that is over 15 inches in length. The RSD-P (Relative Stock Density of Preferred bass) is the proportion of stock-sized bass that are also equal to or greater than 15 inches in length. The PSD and RSD-P values represent the distribution of collected fish, but one must take into account the total number of bass collected along with the total of stock-sized bass in the sample.

The 2007 sample showed a high PSD value of 66, which is a direct reflection of the 117 bass that were 12 inches or longer. The sample had a total of 176 bass that were stock size or larger. This PSD value is toward the high end of a balanced bass/bluegill fishery and is higher than the 2006 sample (PSD: 59). The 2007 RSD-P value of 23 is a direct reflection of the 40 preferred-sized bass collected. The RSD-P value shows some improvement from the 2006 sample (RSD-P: 20).

Weights were taken on largemouth bass to calculate relative weight values. Relative weight values are an indication of body condition. A value from 95 to 100 represents a fish that is in the healthy range and finding a decent amount of food. A higher relative weight value indicates fish with a better body condition. The relative weight values for stock, quality, preferred and memorable bass (>8”, >12”, >15”, >20”) were 93, 94, 95, 107 respectfully. These values showed some similarities to the 2006 sample (93, 95, 100 and 117 respectfully). Stock and quality-sized bass were slightly

below the desired 95 to 100 range. One would have expected to see an improvement in the relative weight values with the abundance of small bluegills that are present.

The sample once again revealed the bluegill fishery to be dominated by fish less than 6 inches in length. Electrofishing effort was able to collect an amazing total of 791 bluegills during three sample runs. The CPUE of 791 bluegills/hr showed a major increase from the 2006 sample (CPUE = 394.5 bluegills/hr). The size distribution from both 2007 and 2006 can be seen on the attached length frequency graphs. The collection of bluegills from 2007 was counted by centimeter group. An accurate inch group distribution was not available for a graph. A good defining length would be that 10 centimeters is approximately 4 inches. The average sized bluegill was around 3 inches in length. The PSD for bluegill is the proportion of quality size bluegills (5.9 inches or greater) in relation to the total number of stock size bluegills (3.15 inches and greater). Due to the number of smaller fish, the bluegill PSD was only 5 and showed a marked decline from the 2006 sample (PSD: 20). The 2007 sample collection consisted of 16 quality-sized bluegills greater than 5.9 inches in length. The 2007 PSD value is below the desired 20 to 40 range that would represent a balanced fishery. The total of 315 stock-sized bluegills was collected. The largest bluegill measured 18 centimeters (7.25 inches) in length.

Figure 3. Length frequency distribution of bluegills collected from the electrofishing sample of Beaverdam Swamp Reservoir on April 26, 2007. (N = 791, CPUE = 791/hr)

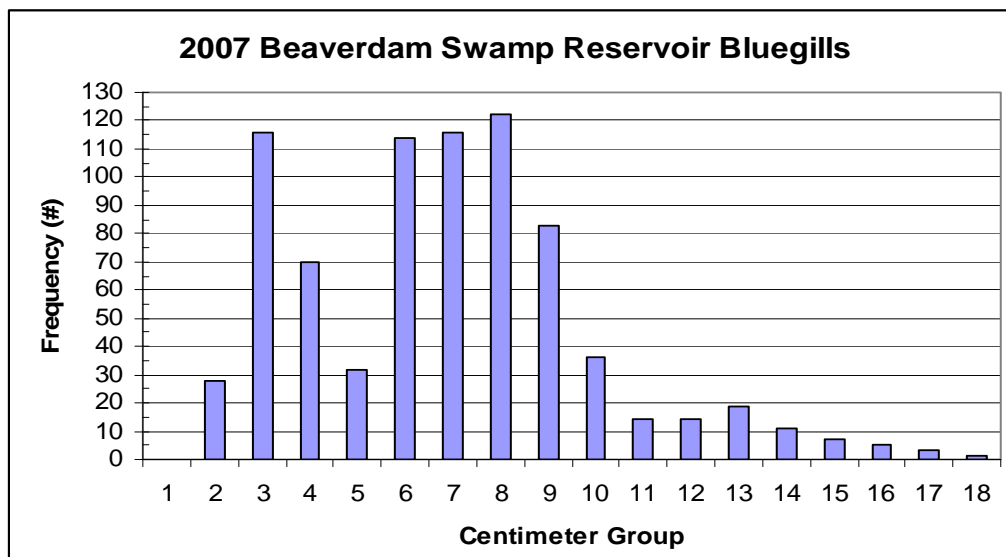
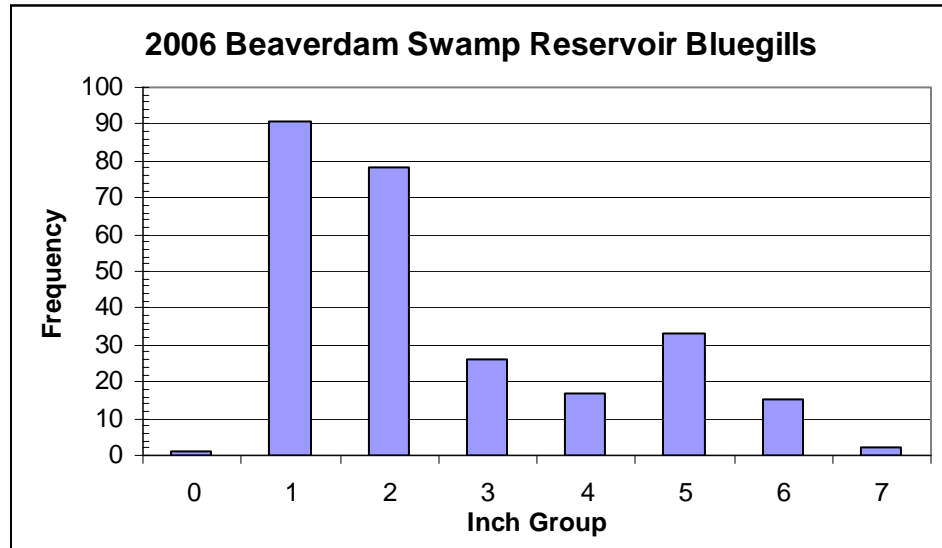


Figure 4. Length frequency distribution of bluegills collected from the electrofishing sample of Beaverdam Swamp Reservoir on April 24, 2006. (N = 263, CPUE = 394.5/hr)



The black crappie population appears to be in decent shape. The 2007 electrofishing sample was able to collect 65 black crappies for a CPUE of 32.5/hr. This catch rate is slightly lower than the 2006 survey (CPUE: 39/hr). This difference could be associated to the variable distribution of black crappies. The numbers of any given sample can become elevated if a few schools of crappies are encountered during sampling. No large schools of black crappies were encountered during the 2007 survey. The majority of crappies came from a few small schools. The size distribution of the 2006 and 2007 samples can be seen on the length frequency histograms. The crappies ranged in size from 4 – 12 inches. Past electrofishing surveys revealed limited numbers of crappies in the 5 – 6 inch range, but the 2007 survey showed a strong year class moving through the fishery. The abundance of 5 to 6 inch crappies will eventually provide some decent action for anglers. The largest black crappie measured in at 12.1 inches.

Figure 5. Length frequency distribution of black crappies collected from Beaverdam Swamp Reservoir on April 26, 2007 (N = 65, CPUE = 32.5/hr)

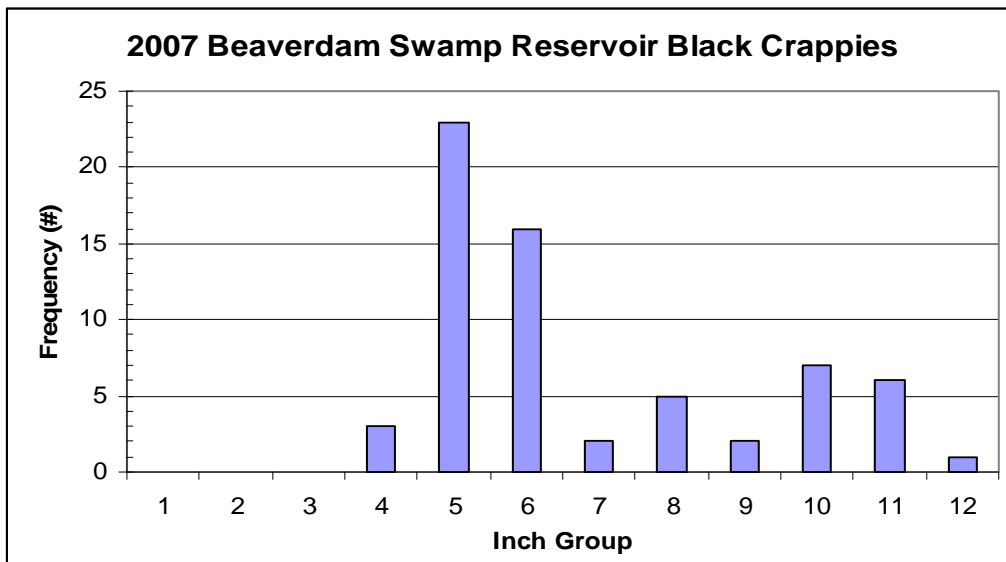
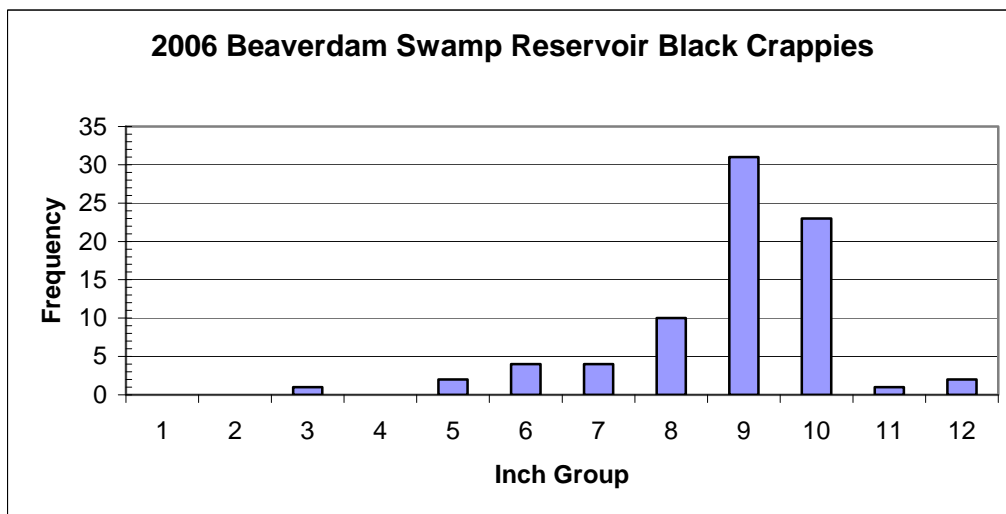


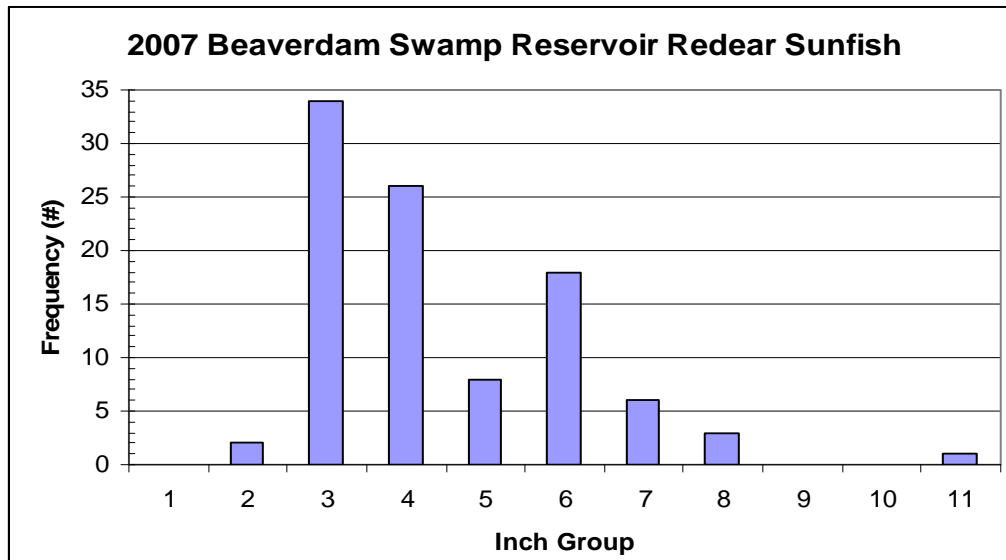
Figure 6. Length frequency distribution of black crappies collected from Beaverdam Swamp Reservoir on April 24, 2006 (N = 78, CPUE = 39/hr)



The redear sunfish population appears to be in fair to decent shape. A total of 98 redear sunfish were collected during 3 sample runs for a CPUE of 98/hr. This catch rate shows improvement over the 2006 sample (CPUE = 76.5/hr). The 2007 size distribution consisted of fish ranging in size from 2 to 11 inches with the majority in the 3 to 7 inch range. The abundance of juvenile fish brought the average size down to 4.8 inches in length. The largest redear sunfish measured an impressive 11.1 inches. The trap net survey of 2006 showed an abundance of redear sunfish with 406 collected. The majority of these fish were in the 6 to 8 inch range with a fair number in the 8 to 10 inch range. Redear sunfish tend to congregate along the banks for spawning season during the early

to mid-May time period. A sample conducted during that time would most likely reveal higher catch rates of larger redear sunfish.

Figure 7. Length frequency distribution of redear sunfish collected from Beaverdam Swamp Reservoir on April 26, 2007 (N = 98, CPUE = 98/hr)



The remaining 7 species of fish collected in low abundance during the electrofishing survey were: brown bullhead (11), chain pickerel (2), gizzard shad (1), American eel (3), banded killifish (1), green sunfish (3) and mud sunfish (1). The brown bullheads ranged in size from 6.5 to 10.5 inches. The two chain pickerel were both 12.5 inches in length. The gizzard shad measured 13 inches. The American eels ranged in size from 16 – 26 inches. The banded killifish measured 2 inches. The green sunfish ranged in size from 2 – 4 inches. The mud sunfish measured 2.6 inches. One bluegill and redear sunfish hybrid was also collected. These fish provide some diversity to the fishery and the possibility of exciting an angler from time to time.

Summary:

The electrofishing survey of Beaverdam Swamp Reservoir showed a fishery consisting of 11 species of fish. The primary game fish species are the largemouth bass, bluegill, black crappie and redear sunfish. These species comprised the majority of the biomass in the sample. The reservoir provides some decent bass fishing even though the numbers of citation-sized bass has dropped over the last few years. The reservoir had very impressive catch rates of citations from 1999 to 2002, with dozens of large bass caught each year. A total of 20 citations were reported during 2006 with 10 citation bass reported. The citation data from 2007 has showed a total of 20 citation-sized fish reported. This total is represented by 10 citation bass, 8 black crappies, 1 channel catfish and 1 chain pickerel. The bluegill fishery is primarily based on small fish less than 6 inches in length. The electrofishing of black crappies was spotty with some small schools of medium-sized crappies collected. The reservoir has good potential to produce some trophy black crappies. The catch rate of redear sunfish showed some improvement with good recruitment observed for the first time in the last several years.